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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,480	06/28/2001	Giuseppe Colombo	05788.0170	2907

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EXAMINER

BLANTON, REBECCA A

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 10/11/2002

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/892,480

Applicant(s)

COLOMBO ET AL.

Examiner

Rebecca A. Blanton

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-66 is/are pending in the application.
- 4a) Of the above claim(s) 49-66 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-38, 40-42, and 47-48 is/are rejected.
- 7) ☒ Claim(s) 39 and 43-46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 34, 43, and 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 43, it is unclear to the examiner what is meant by "substantially pyramidal central body." It is unclear from this language what the claim encompasses.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 34, 36-38, 40-42, and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tate et al. (U.S. 4,035,322) in view of Hiorth (U.S. 4,191,480).

Regarding claims 34, 36-37, and 42, Tate et al. disclose a method for coating polyethylene pellets with a liquid curing agent (abstract). In column 3 lines 23-32, the reference teaches that the pellets are sprayed with the curing agent and then they are passed to an agitation chamber where the pellets are mixed until they are all coated

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with a predetermined amount of curing agent. Tate et al. teach that the curing agent penetrates and diffuses into the pellets as a result of the mixing (column 3 lines 47-52). Additionally Tate et al. teach that the coated particles are mixed for a sufficient time so as to allow the curing agent to fully penetrate and diffuse into the pellets (column 3 lines 47-52). Tate et al. additionally teach that the coated particles are submitted to a drying process in the downstream mixing chamber (column 3 lines 23-35). Tate et al. do not specifically teach the type of device in which the coating process occurs. Hiorth discloses an apparatus that functions as a mixer and a particle-coating device (abstract). Hiorth teaches that the particles flow continuously through the mixing device where they are sprayed with the coating solution (Figure 2 and column 4 lines 13-35). The coating chamber, taught by Hiorth, is a static spraying chamber (abstract). Hiorth discloses that the particles are at least partially coated with the coating solution (column 4 lines 13-35). Hiorth discloses that there are multiple coating injectors that spray the coating liquid (Figure 2 and column 4 lines 20-25). Hiorth additionally teaches that the static spraying chamber allows for the particles to be coated with the liquid while preventing the agglomeration of the coated particles (column 2 lines 19-41). Hiorth discloses that the particles flow downward, by gravity, through the coating device (Figure 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the polymer particles with the curing agent using the static spraying device taught by Hiorth prior to sending the coated particles to a mixing chamber to allow the curing agent to penetrate the particles, as taught by Tate et al., in

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view of the teachings of Hiorth that the static spraying device prevents the coated particles from agglomerating prior to the mixing and drying processes.

Referring to claim 38, neither Tate nor Hiorth disclose the diameter of the liquid coating droplets that are sprayed onto the coating material. However, the diameter of the droplets is a direct measure of the size of the droplets, which is a result effective variable. If the droplets are too large, they will cause the particles to agglomerate, and will not coat the particles evenly. If the droplets are too small they may not coat the particles efficiently because less of the droplets will contact the substrate particles. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the optimum size of the coating droplets through routine experimentation, in the absence of unexpected results, and to use droplets of an appropriate size to allow them to coat the particles without causing the particles to agglomerate.

Referring to claim 40, in Figure 1 and column 2 lines 63-65, Hiorth teaches that the particles to be coated are separated into a plurality of streams that flow into the spraying chamber.

Regarding claim 41, Tate et al. does not disclose the coating temperature. However, the coating temperature is a known result effective variable. If the coating temperature is too high, the coating will deteriorate and will not function properly. However, if the coating temperature is too low, the coating material will thicken and will not properly coat the particles. Additionally, if the substrate particles are in a softened state, the coating material more readily impregnates the particles. Therefore, it would

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have been obvious to one of ordinary skill in the art at the time the invention was made to determine the optimum coating temperature through routine experimentation, in the absence of unexpected results, and to pick a temperature below the temperature at which the coating material begins to deteriorate, but higher than the softening temperature of the particles to allow the coating composition to coat and impregnate the substrate particles.

Regarding claims 47 and 48, Tate et al. disclose coating polyethylene particles with a curing agent (abstract).

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tate et al. (U.S. 4,035,322) in view of Hiorth (U.S. 4,191,480) and in further view of Murata et al. (U.S. 5,230,735).

Referring to claim 35, Tate et al. disclose a mixing device that is down stream in a different chamber from the coating device (column 3 lines 23-32). Murata et al. additionally disclose that the drying portion of the apparatus is downstream of the coating/mixing zone (abstract and column 3 lines 1-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to first coat the particles, followed by mixing the particles in a separate chamber, as taught by Tate et al., followed by drying the particles down stream from the mixing section, as taught by Murata et al., to ensure that the coating material coat and impregnates the particles before it is then dried to prevent agglomeration.

Allowable Subject Matter

Claims 39 and 43-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 39, the applicant's limitation that the coating is sprayed at an injection frequency between 500 and 2000 strikes/min distinguishes over Hiorth because the reference teaches a continuous spray, as do Tate et al., and Murata et al.

None of the prior art of record teaches or makes obvious the applicant's claimed invention of spraying a coating liquid at an injection frequency of 500 to 2000 strikes/min into a static spraying chamber with plastic granules continuously flowing into the chamber, followed by passing the granules into a mixing chamber followed by a drying chamber.

Regarding claim 43, the applicant's limitation that the mixing of the granules is carried out in a static mixer comprising a substantially pyramidal central body with a plurality of baffles extending between the inner wall and the openings for the flow of the particles distinguishes over Hiorth because the reference, while teaching a substantially pyramidal central body, does not teach the presence of baffles.

None of the prior art of record teaches or makes obvious the applicant's claimed invention of a coating method that comprises a static spraying chamber with plastic granules continuously flowing into the chamber, followed by passing the granules into a mixing chamber followed by a drying chamber, where the mixing chamber comprises a substantially pyramidal central body with a plurality of baffles.

Regarding claims 44-45, the applicant's limitation that the mixing step is carried out by passing the coated particles through a plurality of mixing bars distinguishes over Tate et al. because the reference teaches mixing the particles by exposing them to turbulent air.

None of the prior art of record teaches or makes obvious the applicant's claimed invention of a coating method for particles that comprises a static spraying chamber with plastic granules continuously flowing into the chamber, followed by passing the granules into a mixing chamber followed by a drying chamber, where the mixing chamber comprises a plurality of mixing bars to mix the coated particles.

Regarding claim 46, the applicant's limitation that the coated particles are soaked after they are dried distinguishes over Hiorth, Tate et al., and Murata et al., because none of the references teaches soaking the particles after they are coated and dried.

None of the prior art of record teaches or makes obvious the applicant's claimed invention of a method of coating particles that comprises a static spraying chamber with plastic granules continuously flowing into the chamber, followed by passing the granules into a mixing chamber followed by a drying chamber, where the particles are soaked after they are coated and dried.

Response to Arguments

Applicant's arguments with respect to the 103 rejections of claims 34-38, 40-42, and 47-48 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed on 08/05/02 with respect to the 112 rejection of claim 43 have been fully considered but it is not persuasive. The applicant uses the term


Applicant's arguments filed on 08/05/02 with respect to the 112 rejection of claim 43 have been fully considered but it is not persuasive. The applicant uses the term "substantially pyramidal central body," however there is no disclosure in the specification that describes what is meant by a substantially pyramidal central body. Therefore, it is unclear to the examiner what is meant by this limitation.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca A. Blanton whose telephone number is 703-605-4295. The examiner can normally be reached on M - F (7:30am - 3:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on 703-308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

rab 
October 10, 2002


MICHAEL BARR
PRIMARY EXAMINER